

CLAIMS

1. An electroconductive zinc oxide powder, wherein: at least one element selected from the group consisting of IIIB group elements, IVB group elements and Fe is solid-solved in zinc oxide at 0.01 to 10% by mass of the zinc oxide; the average primary particle size calculated from the specific surface area of the powder is 0.03 μm or less; the bulk density is 0.20 g/mL or less; and the volume resistivity is $10^{10} \Omega\cdot\text{cm}$ or less.

2. A process for producing an electroconductive zinc oxide powder according to claim 1, wherein the following steps are successively carried out:

(I) the step of reacting an alkali carbonate with an aqueous slurry of zinc oxide to yield basic zinc carbonate,

(II) the step of heating and aging the basic zinc carbonate,

(III) the step of mixing the resultant aged solution with a water-soluble salt of at least one element selected from the group consisting of IIIB group elements, IVB group elements, and Fe,

(IV) the step of dehydrating and drying the aged matter,

(V) the step of firing the resultant dry matter, and

(VI) the step of pulverizing the fired matter.

3. The process according to claim 2, wherein the concentration of zinc oxide in the aqueous slurry used in the step (I) is set to 10% or less by mass.

4. The process according to claim 2 or 3, wherein the dry matter is fired at 300 to 600°C in an oxidizing atmosphere or a reducing atmosphere in the step (V).

5. An electroconductive composition, wherein an electroconductive zinc oxide powder according to claim 1 is contained in a dispersion state in an amount of 10 to 300 parts by mass per 100 parts by mass of a base material, and the volume resistivity is from 10^3 to 10^{11} $\Omega\cdot\text{cm}$.

6. The electroconductive composition according to claim 5, wherein the base material is rubber.

7. The electroconductive composition according to claim 5, wherein the base material is resin.